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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,219	11/05/2003	Udo Emil Frank	970/001 US	7981

7590

08/30/2005

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EXAMINER

HO, ALLEN C

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 08/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/702,219

Applicant(s)

FRANK, UDO EMIL

Examiner

Allen C. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: line 9, "form" should be replaced by --for forming--. Appropriate correction is required.
2. Claim 9 is objected to because of the following informalities:
 - (1) Line 5, "out" should be replaced by --outer--; and
 - (2) Line 11, "form" should be replaced by --for forming--.Appropriate correction is required.
3. Claim 10 is objected to because of the following informalities: line 12, "form" should be replaced by --for forming--. Appropriate correction is required.
4. Claim 12 is objected to because of the following informalities: line 6, "form" should be replaced by --for forming--. Appropriate correction is required.
5. Claim 17 is objected to because of the following informalities:
 - (1) Line 6, "form" should be replaced by --for forming--; and
 - (2) Claim 17 recites "wherein an outer surface of the collimator ...". It is unclear if it recites the same limitation as the recitation "wherein the head has an outer surface ...".Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-5, 7-15, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Wilkins *et al.* (U. S. Pub. No. 2003/0108155 A1).

With regard to claims 1-5 and 12-15, Wilkins *et al.* disclosed a microfocus x-ray tube comprising: a head (10) that has an outer surface with a cross-section that tapers toward a free end of the head; a target (12) disposed on the head, wherein the outer surface of the head is formed at least partially by the target; and means for forming an electron beam (30) adapted to bombard the target, wherein the means for forming the electron beam such that the x-ray tube has a focus (25) with a diameter of $\leq 200 \mu\text{m}$ (paragraphs [0033], [0034]).

With regard to claim 7, Wilkins *et al.* disclosed a microfocus x-ray tube according to claim 1, wherein the outer surface of the head is formed at least partially by a collimator (39) that is disposed ahead of the target.

With regard to claim 8, Wilkins *et al.* disclosed a microfocus x-ray tube according to claim 1, wherein the outer surface of the head is formed at least partially by a holder (20) for the target.

With regard to claim 11, Wilkins *et al.* disclosed a microfocus x-ray tube according to claim 1, wherein the target is a transmission target (38').

With regard to claim 9, Wilkins *et al.* disclosed a microfocus x-ray tube comprising: a head (10) that has an outer surface with a cross-section that tapers toward a free end of the head, wherein the outer surface of the head is essentially rotationally symmetrical, wherein the outer surface of the head is essentially conical, and wherein the essentially conical outer surface of the head has an opening angle of less than 50° (paragraph [0033], taper angle); a target (12) disposed on the head, wherein the outer surface of the head is formed at least partially by the target; and means for forming an electron beam (30) adapted to bombard the target, wherein the means for forming the electron beam such that the x-ray tube has a focus (25) with a diameter of $\leq 200\ \mu\text{m}$ (paragraphs [0033], [0034]).

With regard to claim 10, Wilkins *et al.* disclosed a microfocus x-ray tube comprising: a head (10) that has an outer surface with a cross-section that tapers toward a free end of the head, wherein the outer surface of the head is essentially rotationally symmetrical, wherein the outer surface of the head is essentially conical, and wherein the head is provided with at least two regions (12, 20) disposed one after another in an axial direction; a target (12) disposed on the head, wherein the outer surface of the head is formed at least partially by the target; and means for forming an electron beam (30) adapted to bombard the target, wherein the means for the electron beam such that the x-ray tube has a focus (25) with a diameter of $\leq 200\ \mu\text{m}$ (paragraphs [0033], [0034]).

With regard to claims 17-20, Wilkins *et al.* disclosed a collimator comprising: a head (10) that has an outer surface with a cross-section that tapers toward a free end (14) of the head; a target (12) disposed on the head; and means for forming an electron beam (30) adapted to bombard the target, wherein the means for the electron beam such that the x-ray tube has a focus

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(25) with a diameter of $\leq 200 \mu\text{m}$, and wherein the outer surface is essentially rotationally symmetrical.

The recitations of "a microfocus x-ray tube" and "a collimator" have not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5, 7, 8, 10-15, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bensussan *et al.* (U. S. Patent No. 4,229,657) in view of Peugeot (U. S. Patent No. 4,521,902).

With regard to claims 1-5 and 12-15, Bensussan *et al.* disclosed a microfocus x-ray tube comprising: a head (26) that has an outer surface (exposed surface) with a cross-section that tapers toward a free end of the head (column 2, lines 47-50); a target (25) disposed on the head,

wherein the outer surface of the head is formed at least partially by the target; and means for forming an electron beam (22) adapted to bombard the target.

However, Bensussan *et al.* failed to teach that the means for forming the electron beam such that the x-ray tube has a focus with a diameter between 10 μm and 200 μm .

Peugeot taught that a greater detail or resolution of viewing is achieved with smaller focus with a diameter of between 10 μm and 200 μm (column 1, lines 15 - 20).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to focus the electron beam to a focus having a diameter between 10 μm and 200 μm , since a person would be motivated to observe objects at greater detail by reducing the diameter of the focus.

With regard to claim 7, Bensussan *et al.* disclosed a microfocus x-ray tube according to claim 1, wherein the outer surface of the head is formed at least partially by a collimator that is disposed ahead of the target (Fig. 6, copper block without the target).

With regard to claim 8, Bensussan *et al.* disclosed a microfocus x-ray tube according to claim 1, wherein the outer surface of the head is formed at least partially by a holder (26) for the target.

With regard to claim 11, Bensussan *et al.* disclosed a microfocus x-ray tube according to claim 1, wherein the target is a transmission target (column 2, lines 59-61).

With regard to claim 10, Bensussan *et al.* disclosed a microfocus x-ray tube comprising: a head (26) that has an outer surface (exposed surface) with a cross-section that tapers toward a free end of the head, wherein the outer surface of the head is essentially rotationally symmetrical, wherein the outer surface of the head is essentially conical (column 2, lines 47-50), and wherein

the head is provided with at least two regions (25, 21) disposed one after another in an axial direction; a target (25) disposed on the head, wherein the outer surface of the head is formed at least partially by the target; and means for forming an electron beam (22) adapted to bombard the target.

However, Bensussan *et al.* failed to teach that the means for forming the electron beam such that the x-ray tube has a focus with a diameter between 10 μm and 200 μm .

Peugeot taught that a greater detail or resolution of viewing is achieved with smaller focus with a diameter of between 10 μm and 200 μm (column 1, lines 15 - 20).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to focus the electron beam to a focus having a diameter between 10 μm and 200 μm , since a person would be motivated to observe objects at greater detail by reducing the diameter of the focus.

With regard to claims 17-20, Bensussan *et al.* disclosed a collimator comprising: a head (26) that has an outer surface (exposed surface) with a cross-section that tapers toward a free end of the head; a target (25) disposed on the head; and means for forming an electron beam (22) adapted to bombard the target.

However, Bensussan *et al.* failed to teach that the means for forming the electron beam such that the x-ray tube has a focus with a diameter between 10 μm and 200 μm .

Peugeot taught that a greater detail or resolution of viewing is achieved with smaller focus with a diameter of between 10 μm and 200 μm (column 1, lines 15 - 20).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to focus the electron beam to a focus having a diameter between 10 μm and

200 μm , since a person would be motivated to observe objects at greater detail by reducing the diameter of the focus.

Allowable Subject Matter

10. The indicated allowability of claims 1-5, 7-15, and 17-20 is withdrawn in view of the newly discovered reference(s) to Wilkins *et al.* (U. S. Pub. No. 2003/0108155 A1), Bensussan *et al.* (U. S. Patent No. 4,229,657), and Peugeot (U. S. Patent No. 4,521,902).

Response to Arguments

11. Applicant's arguments with respect to claims 1-5, 7-15, and 17-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Suzuki *et al.* (U. S. Patent No. 6,385,294 B2) disclosed a microfocus x-ray tube comprising a tapered head and target.
- (2) Dinsmore (U. S. Patent No. 6,195,411 B1) disclosed a microfocus x-ray tube comprising a tapered head and target.
- (3) Poulsen *et al.* (U. S. Patent No. 4,439,870) disclosed a tapered head and target.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho
Primary Examiner
Art Unit 2882

26 August 2005